



Use of Nanotechnology-Based Fire Boundaries on U.S. Navy Ships

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Problem/Opportunity

- Manual installation of insulation, and particularly fire zone insulation, is an extremely complex and cumbersome work practice.
- This task requires significant:
 - Labor Hours
 - Cost
 - Material
 - Time



Objective

- Find an alternative system that can meet or exceed the performance of the current fire boundary system while reducing the overall cost and/or time spent
- Eliminating the hot work & rework associated with shooting studs, including time consuming repairs



Introducing Nanotech Materials

- Create high-performance coatings for challenges in energy efficiency and fire mitigation
- Applications include piping, wooden structures, tanks, roofing, valves, buildings, energy loss prevention and more
- Based in Houston, TX



How Nanotech Solves the Problem

- Nanotech products contain a patented Insulative Ceramic Particle (ICP) additive meant to reject, contain, or slow the transfer of heat
- Our team is exploring Nanotech's Wildfire Shield and Insulative Coat systems for replacing the current Hangar Bay insulation system and/or Fire Zone Bulkhead coatings



Nanotech Materials Data

Wildfire Shield

- Wildfire Shield is NanoTech Materials' passive fire protection solution
- Designed for DOT and public sector projects such as bridge and highway infrastructure, utility poles, barrier fences and more
- Withstands extreme temperatures up to 3,272°F while preventing flame spread and minimizing heat transfer
- Wildfire Shield helps extend the life of critical infrastructure in wildfire-prone areas—providing the durability, performance, and response time today's fire mitigation efforts demand

Insulative Coat

- Cool Touch is a high-performance coating engineered to stabilize surface temperature in both directions
- Reducing burn risk on hot equipment and suppressing condensation and icing on cold equipment — without promoting corrosion under insulation (CUI)
- Cool Touch delivers durable thermal protection without the bulk of traditional insulation
- Ideal for tanks, pipes, and equipment across high-heat, cold-service, and cyclic industrial environments.



Project Progress

- Investigation of Hangar Bay fire protection insulation system and Fire Zone Bulkhead coatings
 - Reviewing drawings, specifications, MIL standards and requirements that were used to qualify both systems
- Conversations with shipbuilding personnel that hold or manage the requirements for both systems
- Compilation of this data into a concise checklist of requirements that the potential Nanotech Materials coating must meet for this specific application



Plans for the Future

- Seek and add any additional requirements to our checklist that Nanotech materials will need to meet for this application
- Collaborate with Nanotech to identify which product will be most appropriate based on requirements
- Perform a performance and cost comparison between the current systems and Nanotech coating
- Compile a list of tests and road map for qualification of the Nanotech product
- Identify other potential areas of application for Nanotech products based on the information gathered in this project



Questions?